

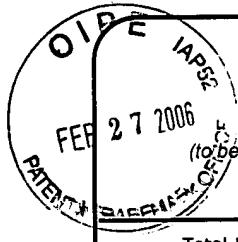
09/445, 892.

CJC  
PTO/SB/21 (09-04) (AW 10/2004)

Approved for use through 7/31/2006. OMB 0651-0031

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# TRANSMITTAL FORM

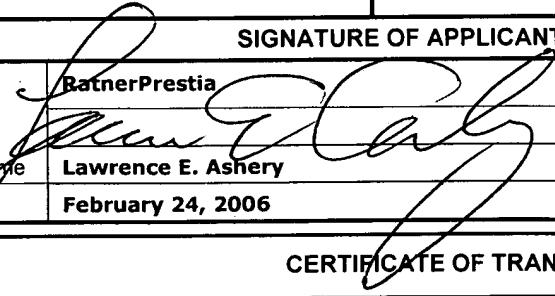
(to be used for all correspondence after initial filing)

Total Number of Pages in This Submission **8**

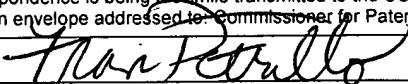
Patent Number	<b>6,740,183</b>	
Issue Date	<b>May 25, 2004</b>	
First Named Inventor	<b>Segawa et al.</b>	
Art Unit	<b>1734</b>	<b>Certificate</b>
Examiner Name	<b>Melvin C. Mayes</b>	<b>MAR 02 2006</b>
Attorney Docket No.	<b>MAT-7855US</b>	<b>of Correction</b>

ENCLOSURES (Check all that apply)		
<input type="checkbox"/> Fee Transmittal Form <input type="checkbox"/> Fee Attached  <input type="checkbox"/> Amendment/Reply <input type="checkbox"/> After Final <input type="checkbox"/> Affidavits/Declaration(s)  <input type="checkbox"/> Extension of Time Request  <input type="checkbox"/> Express Abandonment Request  <input type="checkbox"/> Information Disclosure Statement  <input type="checkbox"/> Certified Copy of Priority Document(s)  <input type="checkbox"/> Response to Missing Parts/ Incomplete Application <input type="checkbox"/> Response to Missing Parts under 37 CFR 1.52 or 1.53	<input type="checkbox"/> Drawing(s) <input type="checkbox"/> Licensing-related Papers <input type="checkbox"/> Petition <input type="checkbox"/> Petition to Convert to a Provisional Application <input type="checkbox"/> Power of Attorney, Revocation, Change of Correspondence Address <input type="checkbox"/> Terminal Disclaimer <input type="checkbox"/> Request for Refund <input type="checkbox"/> CD, Number of CD(s) _____ <input type="checkbox"/> Landscape Table on CD	<input type="checkbox"/> After Allowance Communication to TC <input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences <input type="checkbox"/> Appeal Communication to TC (Appeal Notice, Brief, Reply Brief) <input type="checkbox"/> Proprietary Information <input type="checkbox"/> Status Letter <input checked="" type="checkbox"/> Other Enclosure(s) (please identify below): <ul style="list-style-type: none"> <li>➤ Request for Reconsideration under 37 C.F.R. §1.322;</li> <li>➤ returned postcard</li> <li>➤ copy of Request for Certificate of Correction,</li> <li>➤ PTO Form 1050,</li> <li>➤ pages 1 and 12 of marked- up specification</li> </ul>
<u>Remarks:</u>		

## SIGNATURE OF APPLICANT, ATTORNEY OR AGENT

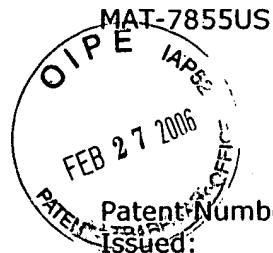
Firm Name	<b>BatnerPrestia</b>		
Signature			
Printed Name	<b>Lawrence E. Ashery</b>		
Date	<b>February 24, 2006</b>	Registration No.	<b>34,515</b>

## CERTIFICATE OF TRANSMISSION / MAILING

I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below:			
Signature			
Typed or Printed Name	<b>Fran Petrillo</b>	Date	<b>February 24, 2006</b>

This collection of information is required by 37 CFR 1.5. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Office, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, ALEXANDRIA, VA 22313-1450.

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MAT-7855US

PATENT

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Patent Number: 6,740,183  
Issued: May 25, 2004  
Name of Patentee: Segawa et al.  
Title of Invention: METHOD OF PRODUCING CERAMIC MULTI-LAYERED SUBSTRATE

**REQUEST FOR RECONSIDERATION UNDER 37 C.F.R. § 1.322**

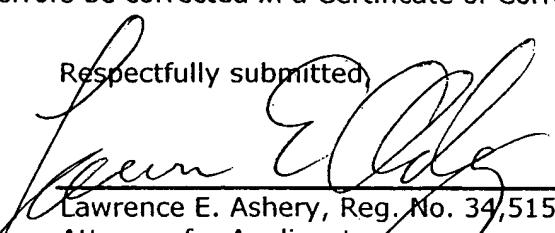
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

This Request is being filed to request consideration of a Request for Certificate of Correction which was previously filed on November 4, 2004 (copy enclosed).

The Request for Certificate of Correction states that there are errors on the title page, in the Abstract. The Abstract should read as amended in the Marked-up Copy of Specification Showing Additions and Deletions (copy enclosed).

It is respectfully requested that these errors be corrected in a Certificate of Correction.

Respectfully submitted,

  
\_\_\_\_\_  
Lawrence E. Ashery, Reg. No. 34,515  
Attorney for Applicants

LEA/dlm  
Enclosure: Copy of Request for Certificate of Correction  
Copy of pages 1 and 12 of Marked-up  
Copy of Specification

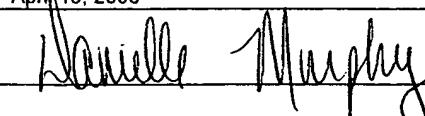
Dated: April 13, 2005

P.O. Box 980  
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(610) 407-0700

The Commissioner for Patents is hereby authorized to charge payment to Deposit Account No. 18-0350 of any fees associated with this communication.

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April 13, 2005



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**Commissioner for Patents:**

Date: April 13, 2005

Please acknowledge receipt of the document(s) described below by imprinting the Patent and Trademark Office "date-stamp" hereon and returning this card to the addressee indicated on the reverse side.

FILE NO. MAT-7855 WS

FEES DUE?  NO or  \$

NAME: Segawa et al

91PE

- IDS and PTO Form 1449** (\_\_\_\_ pp.) (**SUPPLEMENTAL: YES or NO**)

**Amendment** (\_\_\_\_ pp.) (**PRELIMINARY: YES or NO**) APR 15 2005

**Copy of \_\_\_\_\_ reference(s)**  **Copy of Specification**

**Verification of a Translation**  **Petition for Ext. of Time (37 CFR 1.13(d))**

**Claim To Right of Priority**  **Priority Document(s) (CERTIFIED)**

**Response to Missing Parts**  **Copy of Formalities Letter**

**Form 1390**  **Certificate of Express Mailing**  **Transmittal** APR 2 2005

**Declaration/POA** (\_\_\_\_ pp.)  **Fee Transmittal**  **Transmittal Form**

**Assignment & Form 1595** (3 pp.)  **Issue Fee and Publication Fee**

**\_\_\_\_ Sheets of Drawings (Formal)**  **Submission of Formal Drawings**

**Certificate of Correction and 1050**  **Status Request**

**Response to Restriction Requirement**  **Credit Card Payment Form (PTO -2038)**

**Selection of Practitioners**  **Request for Consideration under 37CFR 1.322**

**RECEIVED** APR 2 2005  
**RECORDED** APR 2 2005

**Copy of request for Certificate of Correction, PTO-1050, pages 1, 2 & marked-up Spec.**

**COPY**

MAT-7855US



COPY

PATENT

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Patent Number: 6,740,183

Issued: May 25, 2004

Name of Patentee: Segawa et al.

Title of Invention: METHOD OF PRODUCING CERAMIC MULTI-LAYERED SUBSTRATE

**REQUEST FOR CERTIFICATE OF CORRECTION OF PATENT  
FOR PTO MISTAKE (37 C.F.R. § 1.322(a))**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Attention: Decision and Certificate of Correction  
Branch of the Patent Issue Division

1. Attached in duplicate is Form PTO-1050 with at least one copy being suitable for printing.
2. Correction of the Official Letters Patent is respectfully requested in view of the following text which appears correctly in the application file:

On the title page, in the abstract, line 2 of Letters Patent, delete "to remove a" and insert --the removal of-- as indicated in line 3 on page 12 of the marked-up copy of specifications showing additions and deletions filed December 14, 1999.

On the title page, in the abstract, line 3 of Letters Patent, delete "sheet" and insert --sheets-- as indicated in line 3 on page 12 of the marked-up copy of specifications showing additions and deletions filed December 14, 1999.

On the title page, in the abstract, line 4 of the Letters Patent delete "sheets are" and insert --sheet is-- as indicated in line 4 on page 12 of the marked-up copy of specifications showing additions and deletions filed December 14, 1999.

On the title page, in the abstract, line 6 of the Letters Patent delete "For removing the shrinkage suppression sheets, on both faces of the multi-layered ceramic substrate 2 after sintering , water" and insert --Water-- as indicated in line 6 on page 12 of the marked-up copy of specifications showing additions and deletions filed December 14, 1999.

On the title page, in the abstract, line 8 of the Letters Patent after "or" insert --a-- as indicated in line 7 on page 12 of the marked-up copy of specifications showing additions and deletions filed December 14, 1999.

COPY

On the title page, in the abstract, line 9 of Letters Patent after "sprayed" insert --,-- as indicated in line 8 on page 12 of the marked-up copy of specifications showing additions and deletions filed December 14, 1999.

On the title page, in the abstract, line 10 of Letters Patent after "air." insert --onto the shrinkage suppression sheets, on both faces of the multi-layered ceramic substrate, after sintering, to remove the shrinkage suppression sheets.-- as indicated in line 8 on page 12 of the marked-up copy of specifications showing additions and deletions filed December 14, 1999.

3. Please send the Certificate to:

Name:

Lawrence E. Ashery  
P.O. Box 980  
Valley Forge, PA 19482  
(610) 407-0700

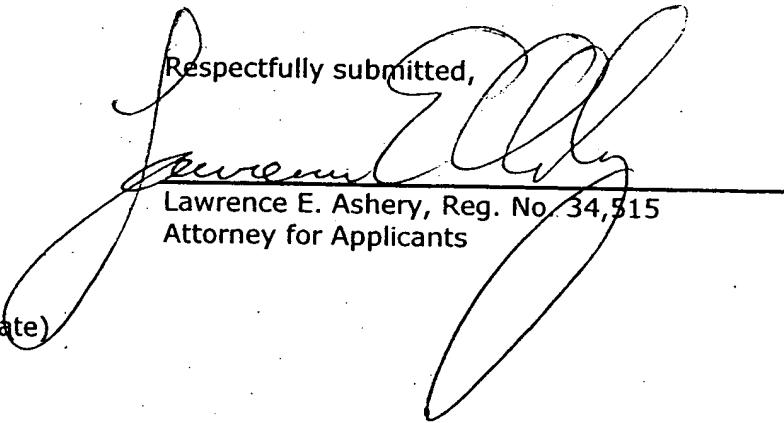
Name of Assignee: Matsushita Electrical Industrial Co., LTD.

Assignment Recorded on: April 24, 2000

Reel: 010788

Frame: 0064

Respectfully submitted,

  
Lawrence E. Ashery, Reg. No. 34,515  
Attorney for Applicants

LEA/rrc

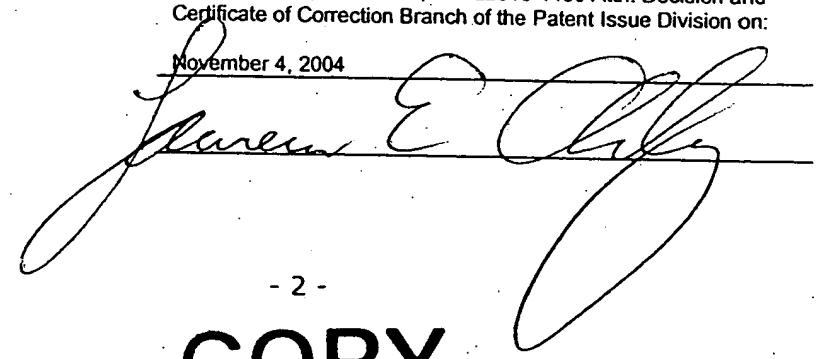
Enclosure: Form PTO-1050 (in duplicate)

Dated: November 4, 2004

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November 4, 2004

**UNITED STATES PATENT AND TRADEMARK OFFICE**  
**CERTIFICATE OF CORRECTION**

PATENT NO: **6,740, 183**

DATED: **May 25, 2004**

INVENTORS: **Segawa et al.**

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Title page.

**Item [57], ABSTRACT.**

Line 2, delete "to remove a" and insert --the removal of--.

Line 3, delete "sheet" and insert --sheets--.

Line 4, delete " sheets are" and insert --sheet is--.

Line 6, delete " For removing the shrinkage suppression sheets on both faces of the multi-layered ceramic substrate 2 after sintering, water" and insert --Water--.

Line 8, after "or" insert --a--.

Line 9, after "sprayed" insert --,--.

Line 10, after "air." insert --onto the shrinkage suppression sheets, on both faces of the multi-layered ceramic substrate, after sintering, to remove the shrinkage suppression sheets.--.

Mailing Address of Sender:

Patent No. **6,740, 183**

No. of Additional Copies:

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**COPY**

-1-

**METHOD FOR MANUFACTURING A MULTI-LAYERED CERAMIC SUBSTRATE**

5

**FIELD OF THE INVENTION**

The present invention relates to the field of methods for

manufacturing a multi-layered ceramic substrate used for electronic devices, and in particular to methods for manufacturing a ~~so-called~~ non-shrinkable multi-layered substrate which greatly suppresses shrinkage of the substrate during firing.

10

**BACKGROUND OF THE INVENTION**

Normally, multi-layered ceramic substrates are manufactured using a method called the green sheet lamination method. In this method, green sheets, made by forming a slurry containing ceramic powder and organic binder into a sheet, are punched (for holes) and screen printed with conductive paste. These green sheets are stacked to the required number, press-heated to laminate the layers, and then fired.

15

The advantages of this method include the feasibility of fine pattern printing realized by the extremely flexible green sheet and good permeability to organic solvents, and good surface smoothness and air-tightness which allow the 20 lamination of even up to several dozens of layers.

On the other hand, the main disadvantage is the difficulty in achieving dimensional accuracy. This is due to shrinkage of the ceramic substrate accompanied by sintering which occurs during firing ~~it~~. Inaccurate dimensions cause mismatching between components and conductive patterns, generating the 25 serious problem of inability to mount semiconductor chips such as CSPs (chip size packages) and MCMs (multi-chip modules) with high accuracy.

COPY

## ABSTRACT OF THE DISCLOSURE

A method for manufacturing a multi-layered ceramic substrate which enables the removal of ~~to remove~~ a shrinkage suppression sheets without damaging the multi-layered substrate. The shrinkage suppression sheets is ~~are~~ formed on both

- 5 faces of unfired laminated green sheets, and then the laminated green sheets are fired. ~~For removing the shrinkage suppression sheets on both faces of the multi-layered ceramic substrate 2 after sintering, water~~ Water, ceramic powder, or a water and ceramic powder mixture is sprayed, together with compressed air, onto the shrinkage suppression sheets, on both faces of the multi-layered ceramic substrate,
- 10 after sintering, for to removeal of the shrinkage suppression sheets.

**COPY**